

ABSTRACT OF THE DISCLOSURE

An AlGaAs cladding layer is formed on a GaAs semiconductor substrate, and then an i-type GaAs layer is formed thereon. Then, stripe-like grooves are formed in the GaAs layer by the photolithography method, and then an InAs layer is formed by the MBE method. At this time, edges of convex portions are deformed to be gentle with a rise of a substrate temperature, and thus flat portions are almost eliminated. Then, InAs is hardly deposited on slant surfaces of the convex portions and the InAs is grown on the bottom portions of the grooves in the S-K mode, so that InAs islands that are separated mutually are formed. Then, quantum dots are formed by covering the InAs islands with i-type GaAs. In this manner, a periodic structure of the quantum dots is formed by using the grooves.